Appendix C – Aggregate Demand List (ADL) Format

The Aggregate Demand List (ADL) is the data product that drives FSM and the CDM Ground Delay Program Enhancements prototype operations. The ADL is primarily composed of data extracted from the CDM Hubsite databases, which are maintained with a combination of OAG data, airline-provided flight data messages, NAS messages generated from the ATC system, and issued ground delays (EDCTs). The ADL also includes GDP-specific data entered by the traffic management specialist using FSM. This appendix describes the contents of Version 6 of the ADL file (used with ETMS 7.5 and FSM v1.8.4) in detail and in three parts.

- Part 1 - Provides an overview of the ADL.
- Part 2 - Describes the data blocks provided in the ADL.
- Part 3 - Describes the data fields provided in the ADL flight data records.

C.1 Part 1 – General Description

C.1.1 Contents

An ADL file contains all data pertinent to running a ground delay program for arrivals at an airport. A particular ADL contains data for only one airport. The data provided includes the following items. NOTE: The data block name for each item is shown in square brackets.

- The airport arrival rate [AAR] (required)
- The airport departure rate [ADR] (required)
- The arrival fixes [AFIX] (required)
- The departure fixes [DFIX] (required)
- The parameters defining a proposed or actual ground delay programs [GDP_PARAMS] (optional)
- The parameters defining a compression [COMP_PARAMS] (optional)
- The parameters defining a blanket [BKT_PARAMS] (optional)
- The parameters defining a ground stop [GS_PARAMS] (optional)
- The status of airline substitutions [SUB_FLAG] (optional)
- A list of all arrivals from one hour in the past to twenty hours in the future [ARRIVALS] (optional)
- A list of all departures from one hour in the past to twenty hours in the future [DEPARTURES] (optional)
- For each arrival and departure, a record containing virtually every field in the ETMS database, except for route-of-flight related fields.

C.1.2 File Naming

ETMS uses a file naming convention that facilitates users who are trying to find particular files in a directory full of data files. The file naming for the ADL files follows this convention for two reasons:

- It has proven to be useful to FAA users
- It allows the ADL files to be co-mingled with ETMS data files in a logical manner

A file name consists of six parts separated by periods (.):

- The location identifier for which the data was generated; five characters with trailing blanks filled with underscores (_);
- The report type; four characters; for ADL files, type is “lcdm”
- The date and time the file was requested; 8 digits; ddhhmmss
- Sequence number, used to distinguish two identical files requested in the same second; 2 digits; 01, 02, etc.
- Data type; “arr” for arrivals only, “dep” for departures only, “all” for both
- Filtering type; “unfilt” for no filtering, “gamf” for GA and military filtering, “airline name” (e.g., aal) for airline-specific filtering

All letters in a file name are lower case. For example, an ADL file generated for the ATCSCC for Boston arrivals on February 6 at 15:35:33 Z would be named:

bos__.lcdm.06153533.01.arr.unfilt

An ADL file generated for Delta for Atlanta arrivals and departures on July 17 at 09:17:05 would be named:

atl__.lcdm.17091705.01.all.dal

NOTE: An ADL file is compressed and encrypted for transmission to user sites. The suffix “.gz” indicates a file is compressed (using “gzip”). The suffix “.enc” indicates a file is encrypted.

C.1.3 Organization

An ADL file consists of two main parts: the header and the data update. The header consists of five fixed-format lines required by FSM, interspersed by some comment lines containing useful information about the report. The data update section consists of multiple blocks of data delimited by keywords. Each data block starts with a keyword “START_xxx” where “xxx” is the mnemonic indicating the data type. Each data block ends with a corresponding “END_xxx” keyword. The entire data update section is delimited by its own keywords: “START_UPDATE” and “END_UPDATE”.

The use of the “START” and “END” keywords is designed to make is easier to keep backwards compatibility when new data is added to the file. When a software program encounters a

"START" keyword, it should check to see if the keyword is one that the program recognizes. If not, the program should discard lines until it reaches the corresponding "END" keyword.

C.1.4 General Formatting

The ADL files are formatted to enhance the readability of the files. The general characteristics of the formatting follow.

- An ADL contains ASCII records terminated by NEWLINE characters.
- Comment lines are used to provide helpful information or to separate blocks of text. A comment line contains a "#" character in column 1.
- FSM Header lines contain a ":" character in column 1.
- "START_xxx" and "END_xxx" keywords appear on separate lines starting in column 1.
- Lines within a data block are indented by one column; that is, a space character appears in column 1.
- There can be no blank lines within a data block.
- Within the flight records:
  - Fields are fixed-width (column-aligned)
  - A blank field is indicated by "-" in the first column of the field.
  - The value of a true/false field is shown as "Y" (true) or "-" (false)

C.1.5 Header

The header of an ADL file consists of five lines required by FSM interspersed with comment lines. A colon (:) in column 1 indicates a required header line. Comment lines are indicated by a pound sign (#) in column 1. The required lines must be in the order listed below; the comment lines can appear anywhere. In some cases, blank comment lines are used just to improve the readability of the file.

The five required lines are defined as follows. (NOTE: The line numbers ignore any interspersed comment lines.)

- Required line 1 –":Product Code:" followed by the FSM product code.
- Required line 2 – ":Magic Number:" followed by the FSM magic number
- Required line 3 – ":Version Num:" followed by the ADL version number
- Required line 4 – ":Date:" followed by the date the ADL was generated
- Required line 5 – ":First Update:" followed by the day/time of the start of the flight data records

A sample header follows:

```
:Product Code:  0xfaa
:Magic Number:  0xfaa1
:Version Num :  0x5
#
#
:Date:  08/16/1999
:First Update:  16010315
#
```

C.2 Part 2 – ADL Data Blocks

The bulk of an ADL file is the data update. It starts with a single line containing the day-hour-minute at which the update was generated, as follows:

```
START_UPDATE ddhhmmss
```

The data update is terminated by a single line that also includes the update time, as follows:

```
END_UPDATE ddhhmmss
```

The data update is itself composed of many data blocks, described in the following sub-sections.

C.2.1 AFIX (required)

The AFIX block will always appear. It will contain a list of the arrival fixes defined in ETMS for this airport. A sample AFIX block follows:

```
START_AFIX
 ROBRT
 BARIN
 TRIXY
 FINKS
 MUMSY
END_AFIX
```

C.2.2 DFIX (required)

The DFIX block will always appear. It will contain a list of the departure fixes defined in ETMS for this airport. A sample DFIX block follows:

```
START_DFIX
 ROBRT
 BARIN
 TRIXY
 FINKS
```

MUMSY
END_DFIX

C.2.3 AAR (required)

The AAR block will always contain at least one line showing the default value for the airport arrival. It may contain an additional line showing values that a specialist has entered, either through an AAR update or as part of a GDP. A sample AAR block follows:

START_AAR
DEFAULT 60
AAR_TIME 161500 IDX 9 AARs 60 60 60 25 25 25 25 25 25 60 60 60 60 60 60
END_AAR

The AAR_TIME value is the date/time of the hour to which the first AAR should be applied. The remaining AARs are for the subsequent hours. The "IDX 9" should be ignored.

C.2.4 ADR (required)

The ADR block will always contain at least one line showing the default values. It may contain an additional line showing values that a specialist has entered, either through an ADR update or as part of a GDP. A sample ADR block follows:

START_ADR
DEFAULT 60
ADR_TIME 161500 IDX 9 AARs 60 60 60 25 25 25 25 25 25 60 60 60 60 60 60
END_ADR

The ADR_TIME value is the date/time of the hour to which the first ADR should be applied. The remaining ADRs are for the subsequent hours. The "IDX 9" should be ignored.

C.2.5 METAR (optional)

The METAR block will always contain the current METAR. A sample METAR block follows:

START_METAR
KEWR 071851Z 22012G20KT 10SM OVC250 19/00 A3020 RMK AO2
SLP225 T01890000=
END_METAR

C.2.6 TAF (optional)

The TAF block will always contain the current TAF. A sample TAF block follows:

START_TAF
KEWR 071901Z 071918 24012KT P6SM OVC250
BECMG 0002 VRB03KT SCT060 BKN250

```
   FM0800 VRB03KT P6SM SKC
    TEMPO 0912 6SM BR
   FM1400 17005KT P6SM SCT250=
END_TAF
```

C.2.7 GDP_PARAMS (optional)

The GDP_PARAMS block contains all the parameters specified when a specialist either proposed or issued a ground delay program. Each parameter is preceded by an explanatory keyword. The first line after START_GDP_PARAMS will contain either PROPOSED or ACTUAL indicating whether the GDP has actually been issued. Times are shown as day/time (DDHHMM) as well as in an internal Metron format. A proposed GDP_PARAMS block will appear whenever a CDM GDP advisory has been sent. An actual GDP_PARAMS block will appear if EDCTs have actually been issued. Only the parameters from the last actual GDP issued will be shown.

Once a GDP_PARAMS block appears in the ADL, it will stay in the ADL until one of the following conditions occurs:

- The GDP is cancelled (purged).
- A new GDP (revision or extension) is issued.

This means the last GDP_PARAMS block will stay in the ADL even if a compression, blanket, or ground stop is issued.

When a GDP is cancelled, all of the lines in the block will be removed and will be replaced by the text GDP_PGM_TERMINATED followed by the time of the cancellation in MMDDHHMMSS format. This message will be retained until a new GDP, either actual or proposed, is started or until 0800z.

A sample GDP_PARAMS block follows:

```
START_GDP_PARAMS
  ACTUAL
  #
  START_COMMON_PARAM
  AIRPORT BOS
  CURRENT_TIME 151958          : 4358 :
  START_TIME 151958            : 4358 :
  END_TIME 160159        : 4959 :
  AIRCRAFT_TYPE All
  ARRIVAL_FIX All
  CARRIER_NAME All
  NOW_PLUS 45
  GA_FACTOR 0
  SEL_APT MSP
  INCLUDE_CENTER SECOND_TIER
  END_COMMON_PARAM
```

DELAY_CEILING 999
OPERATION_TYPE RBS++
FULL_BRIDGE_ONLY UAL
LIMIT_BRIDGE_ONLY AAL
LIMIT_BRIDGE_ONLY DAL
START_AAR
:0000 – 38: 10 9 10 9
:0100 – 38: 10 9 10 9
:0200 – 38: 10 9 10 9
:0300 – 38: 10 9 10 9
:0400 – 38: 10 9 10 9
:0500 – 38: 10 9 10 9
:0600 – 38: 10 9 10 9
:0700 – 38: 10 9 10 9
:0800 – 38: 10 9 10 9
:0900 – 38: 10 9 10 9
:1000 – 38: 10 9 10 9
:1100 – 38: 10 9 10 9
:1200 – 38: 10 9 10 9
:1300 – 38: 10 9 10 9
:1400 – 38: 10 9 10 9
:1500 – 38: 10 9 10 9
:1600 – 38: 10 9 10 9
:1700 – 38: 10 9 10 9
:1800 – 38: 10 9 10 9
:1900 – 38: 10 9 10 9
:2000 – 38: 10 9 10 9
:2100 – 38: 10 9 10 9
:2200 – 38: 10 9 10 9
:2300 – 38: 10 9 10 9
END_AAR
DEP_EXEMPT_TYPE By_Status
LAST_GDP_END_TIME NA
TOTAL_FLIGHTS 326
AFFECTED_FLIGHTS 191
TOTAL_DELAY 31551
MAX_DELAY 206
AVG_DELAY 165
REPORT_TIME 152002ZZ
END_GDP_PARAMS

C.2.8 COMP_PARAMS (optional)

The COMP_PARAMS block contains all the parameters specified when a specialist performs a compression of a previously issued ground delay program. It is similar to the GDP_PARAMS block.

Once a COMP_PARAMS block appears in the ADL, it will stay in the ADL until one of the following conditions occurs:

- The GDP is cancelled (purged).
- A new GDP (revision or extension), compression, blanket, or ground stop is issued.

A sample COMP_PARAMS block follows:

```
START_COMP_PARAMS
  ACTUAL
  #
  AIRPORT BOS
  ADL_TIME 8/15/1999 22:03Z
  REPORT_TIME 15220521
  WINDOW_PARAMETER 0
  START_TIME 152203
  END_TIME 160459
  BRIDGE_ONLY UAL
  COMP_RULE MEMBERS_ONLY
  TOTAL_FLIGHTS 142
  AFFECTED_FLIGHTS 71
  TOTAL_DELAY 22407/21644/-763
  MAX_DELAY 203/203/0
  MIN_DELAY 3/3/0
  AVG_DELAY 157.8/152.4/-5.4
END_COMP_PARAMS
```

C.2.9 BKT_PARAMS (optional)

The BKT_PARAMS block contains all the parameters specified when a specialist performs a blanket delay of a previously issued ground delay program. It is similar to the GDP_PARAMS and COMP_PARAMS blocks.

Once a BKT_PARAMS block appears in the ADL, it will stay in the ADL until one of the following conditions occurs:

- The GDP is cancelled (purged).
- A new GDP (revision or extension), compression, blanket, or ground stop is issued.

A sample BKT_PARAMS block follows:

```
START_BKT_PARAMS
  ACTUAL
  START_COMMON_PARAM
  AIRPORT ORD
  CURRENT_TIME 232024    : 4424 :
  START_TIME 232200      : 4600 :
```

```
  END_TIME 240357  : 5157 :
  AIRCRAFT_TYPE All
  ARRIVAL_FIX All
  CARRIER_NAME ALL
  NOW_PLUS 45
  GA_FACTOR 0
  INCLUDE_CENTER ALL
  END_COMMON_PARAM
  ADJUST_MINUTE 20
  REPORT_TIME 232032ZZ
END_BKT_PARAMS
```

C.2.10 GS_PARAMS (optional)

The GS_PARAMS block contains all the parameters specified when a specialist issues a ground stop using FSM. It is similar to the GDP_PARAMS block.

Once a GS_PARAMS block appears in the ADL, it will stay in the ADL until one of the following conditions occurs:

- The GS is cancelled (purged).
- A new GS (revision or extension), compression, blanket, or ground stop is issued.

When a GS is cancelled, all of the lines in the block will be removed and will be replaced by the text GS_PGM_TERMINATED followed by the time of the cancellation in MMDDHHMMSS format. This message will be retained until a new GS, either actual or proposed, is started or until 0800z.

A sample GS_PARAMS block follows:

```
START_GS_PARAMS
  ACTUAL
  #
  START_COMMON_PARAM
  AIRPORT ORD
  CURRENT_TIME 232024    : 4424 :
  START_TIME 232200      : 4600 :
  END_TIME 240357  : 5157 :
  AIRCRAFT_TYPE All
  ARRIVAL_FIX All
  CARRIER_NAME ALL
  NOW_PLUS 15
  GA_FACTOR 0
  INCLUDE_CENTER ALL
  END_COMMON_PARAM
  START_AAR
  :0000 – 38: 10 9 10 9
```

```
  :0100 – 38: 10 9 10 9
  :0200 – 38: 10 9 10 9
  :0300 – 38: 10 9 10 9
  :0400 – 38: 10 9 10 9
  :0500 – 38: 10 9 10 9
  :0600 – 38: 10 9 10 9
  :0700 – 38: 10 9 10 9
  :0800 – 38: 10 9 10 9
  :0900 – 38: 10 9 10 9
  :1000 – 38: 10 9 10 9
  :1100 – 38: 10 9 10 9
  :1200 – 38: 10 9 10 9
  :1300 – 38: 10 9 10 9
  :1400 – 38: 10 9 10 9
  :1500 – 38: 10 9 10 9
  :1600 – 38: 10 9 10 9
  :1700 – 38: 10 9 10 9
  :1800 – 38: 10 9 10 9
  :1900 – 38: 10 9 10 9
  :2000 – 38: 10 9 10 9
  :2100 – 38: 10 9 10 9
  :2200 – 38: 10 9 10 9
  :2300 – 38: 10 9 10 9
  END_AAR
  REPORT_TIME 232032ZZ
END_GS_PARAMS
```

C.2.11 SUB_FLAG (optional)

The SUB_FLAG block contains one line indicating whether the airline substitution process is currently ON or OFF in ETMS. A sample SUB_FLAG block follows:

```
START_SUB_FLAG
 ON
END_SUB_FLAG
```

C.2.12 FADT_TIMES (optional)

The FADT_TIMES block contains a list of each FADT file that has been generated during the current traffic management event at the airport. A FADT file is the file that FSM generates whenever a set of EDCTs or FA delays is sent out. A GDP, a compression, a blanket program, and a ground stop all cause a FADT to be generated. The FADT_TIMES list will show each FADT that has been issued as well as the type of the FADT. The FADT list will only appear if a traffic management initiative is in place for this airport. A sample FADT_TIMES block follows:

```
START_FADT_TIMES
 04173029 GDP
```

04184317 COMP
04200011 GDP
END_FADT_TIMES

C.2.13 ARRIVALS (optional)

The ARRIVALS block contains the arriving flights for the airport. The START_ARRIVALS line contains an additional field indicating the number of flight records that appear in the block. START_ARRIVALS is then followed by a line for each flight in the ARRIVALS block. The contents of each line and the definition of the data fields are the subject of Part 3 of this document.

Two comment lines precede the ARRIVALS block. One indicates that the following list is for arrivals. The other shows the column headers for each of the data fields in the flight records.

It was stated earlier that an ADL contains the arriving flights for the time interval from one hour earlier to twenty hours later than the current time. Following is a more precise description of these items.

C.2.13.1 ADL Time Interval

The ADL time range is computed as follows:

- Get the current time.
- Truncate to the start of the current hour.
- Subtract 1:00 from the current hour; this is the start time.
- Add 19:59 to the current hour; this is the end time.
- For example, if a report is generated at 12:35, it will contain the flights arriving from 11:00 the same day to 7:59 the next day.

C.2.13.2 Arriving Flights

ETMS defines a flight to be a flight leg; that is, a unique combination of call sign, origin, destination, and time of operation. For example, flight ABC1223 from BOS to ORD to SFO on 8/23/99 is two flights, one operating from BOS to ORD, another operating from ORD to SFO. Given this definition, the ARRIVALS block contains the following flights for the ADL time range:

- All flights that ETMS currently predicts to arrive at the given airport in the ADL time interval.
- All canceled flights that, when they originally entered the CDM database via an FS, FC, FM, or FZ message, were predicted to arrive at the given airport in the ADL time interval.

- All flights that are diverted but that, when they originally entered the CDM database via an FS, FC, FM, or FZ message, were predicted to arrive at the given airport in the ADL time range. [NOTE: The original diverted flight will not appear in the ADL if a diversion recovery is created with the same call sign.]

A sample ARRIVALS block follows (NOTE: the records have been truncated to the width of the page, and only two records are shown):

```
#                ARRIVALS
#ACID    DEST ACENTR ORIG DCENTR DFIX   EDFT   AFIX   EAFT    USR TYPE CLS
…
#
START_ARRIVALS 592
 UCA4467 BOS   ZBW     ISP   ZNY     -      -      WOONS 152343 C    B190 T
…
 AAL155   BOS   ZBW     EGLL  ZEU     -      -      SCUPP 152343 C    A306 J
…
 …
END_ARRIVALS
```

C.2.14 DEPARTURES

The DEPARTURES block contains the departing flights for the airport. The START_ DEPARTURES line contains an additional field indicating the number of flight records that appear in the block. START_DEPARTURES is then followed by a line for each flight in the DEPARTURES block. The contents of each line and the definition of the data fields are the subject of Part 3 of this document.

Two comment lines precede the DEPARTURES block. One indicates that the following list is for departures. The other shows the column headers for each of the data fields in the flight records.

It was stated earlier that an ADL contains the departing flights for the time interval from one hour earlier to twenty hours later than the current time. Following is a more precise description of these items.

C.2.14.1 ADL Time Interval

The ADL time range is computed as follows:

- Get the current time.
- Truncate to the start of the current hour.
- Subtract 1:00 from the current hour; this is the start time.
- Add 19:59 to the current hour; this is the end time.

For example, if a report is generated at 12:35, it will contain the flights departing from 11:00 the same day to 7:59 the next day.

C.2.14.2 Departing Flights

ETMS defines a flight to be a flight leg; that is, a unique combination of call sign, origin, destination, and time of operation. For example, flight ABC1223 from BOS to ORD to SFO on 8/23/99 is two flights, one operating from BOS to ORD, another operating from ORD to SFO. Given this definition, the DEPARTURES block contains the following flights for the ADL time range:

- All flights that ETMS currently predicts to depart from the given airport in the ADL time interval.
- All canceled flights that, when they originally entered the CDM database via an FS, FC, FM, or FZ message, were predicted to depart from the given airport in the ADL time interval.
- All flights that are diverted but that, when they originally entered the CDM database via an FS, FC, FM, or FZ message, were predicted to depart from the given airport in the ADL time range. [NOTE: The original diverted flight will not appear in the ADL if a diversion recovery is created with the same call sign.]

A sample DEPARTURES block follows (NOTE: the records have been truncated to the width of the page, and only two records are shown):

```
#                 DEPARTURES
#ACID     DEST   ACENTR   ORIG   DCENTR   AFIX    EFTA   USR   TYPE   CLS   …
#
START_DEPARTURES 608
 GAA1234   ISP    ZNY      BOS    ZBW      -       -      C     B190   T     …
 SWR785   EGLL    ZEU      BOS    ZBW      -       -      C     A306   J     …
…
END_DEPARTURES
```

C.3 Part 3 – Flight-Specific Data

Part 3 describes the data items that CDM will provide for a flight. Each data item description includes:

- The name under which the data item appears in the ADL file (these are the names that appear in the column header comment line)
- An expanded descriptor for the data item
- The corresponding CDM message field reference number, when it exists, in square brackets
- The format of the field
- When necessary, a definition of the field and how it will be filled

Some general notes about the field descriptions and formats:

- Fields with null values will appear in the ADL file as the character '-'.

- Field syntax is given in an abbreviated shorthand using the following conventions:
  - L – represents one upper-case letter
  - d – represents one digit
  - c – represents one alphanumeric character (either letter or digit); by convention, CDM uses only upper case letters in the data fields
  - [] – means the characters within are optional; any characters not shown in brackets are required
  - Example: Ldd[cc] means an upper case letter followed by two required digits and zero, one, or two characters.
- All time-of-day fields will be 6 digits: two digits each of day-hour-minute (ddhhmm).
- Field values are left aligned with their column headers.
- Fields are separated by two or more blanks.
- No field will be blank; if no value is defined for that field, a '-' will appear.
- Current ETMS report field names have been used wherever appropriate. Some new names have been suggested where the existing field names are misleading or confusing.
- The name choices are constrained so that all of the current ETMS field names can still be used (this is critical for backwards compatibility). This leads to what may seem like some strange choices for names. For example: Airline Gate Time of Departure would be logically abbreviated as AGTD. Unfortunately, this is a pre-existing name for the Actual Gate Time of Departure (although it is not a gate time!). CDM Gate Time of Departure might also be a desirable choice, but CGTD is Controlled Time of Departure (again, even though it is not a gate time). So LGTD is used (its at least somewhat mnemonic: airLine).
- Flag name lengths have been minimized in an attempt to keep the ADL files from getting any bigger than necessary. This again follows ETMS convention.

C.3.1 Parsing Hints

The ADL file formatting has been designed to parse by name rather than by position. Although every effort will be made not to rearrange the file, it may be desirable to do so in order to add fields but still keep the file readable. The approach that some have used to parse data out of the ETMS reports is to:

- Define the field names that you are looking for as constants
- Search for those names in the column header line counting what position each is in
- Read the flight data records, assigning the values in the previously determined positions into the appropriate internal variables

For example, if you are interested in PGTD, you search the column header line to find that it is the 20th field. I parse each flight record, grab the 20th token, convert it to internal format, and store it in the appropriate internal variable (this works because we ensure that a token exists in every column). Additionally, you can flag an error if a key field that you need is not in the ADL file. This generally keeps the parsing software forward compatible through file format changes.

C.3.2 Flight Data Fields

The fields currently provided for each flight in an ADL are, from left to right:

1. ACID: Aircraft ID (AKA. flight identifier, call sign) [CDM Field 02] – Lc[ccccc]

   The flight identifier from OAG, CDM message, or NAS. This must identify the flight as it will be filed on its NAS flight plan.

2. DEST: Destination Airport (AKA. arrival airport) [CDM Field 27] – Lcc[c]
3. ACENTR Arrival Center – LLL

   ARTCC of the destination airport

4. ORIG: Origin Airport (AKA. departure airport) [CDM Field 26] – Lcc[c]
5. DCENTR: Departure Center – LLL

   ARTCC of the origin airport

6. DFIX: Departure Fix – LLL[LL]

   The name of the departure fix as determined by ETMS modeling.

7. EDFT: Estimated Departure Fix Time – dddddd

   Time over the departure fix as estimated by ETMS.

8. AFIX: Arrival Fix – LLL[LL]

   The name of the arrival fix as determined by ETMS modeling.

9. EAFT: Estimated Arrival Fix Time – dddddd

   Time over the arrival fix as estimated by ETMS.

10. USR – User Category – L

    One character indicating C=Air Carrier, T=Air Taxi, F=Freight/Cargo Carrier, M=Military, G=General Aviation, O=Other

11. TYPE: Aircraft Type [CDM Field 03] – [L/]Lcc[c][\L]

    Rules of precedence for setting this field, in decreasing order of priority are:

    - value received from NAS

- value received from airline
- value received from OAG

12. CTG: Aircraft Category – L

    One character indicating J=Jets, T=Turbo, P=Props

13. CLS: Aircraft Weight Class – L

    One character indicating H=Heavy, L=Large, S=Small

14. ETD: Estimated Time of Departure – Lddddd

    The ETD is the best, estimated runway departure time considering all data sources. The time is preceded by a prefix indicating the status of the flight. The prefix values are:

    - S - the estimate is based solely on OAG data
    - P - the estimate is based on flight plan data
    - L - the estimate is based on an airline-generated CDM message (the L prefix will be used if the time is based on an airline-provided gate departure time or runway departure time)
    - C - the estimate is a controlled departure time
    - A - the estimate is from a NAS activation message (DZ); the flight is airborne
    - E - the estimate has been extrapolated from an active NAS message other than a DZ; the flight is airborne

    The precedence for the runway time in decreasing priority order is:

    - The actual time of departure taken from an DZ, or estimated from another "active" NAS message (prefix is A or E)
    - The current time if the flight is five minutes past its previous ETD and hasn't yet departed (prefix is S, L, C, or P; TOD flag is true); this is known as the ETMS "time-out" delay. Note: When a flight is time-out delayed, the ETD keeps the prefix it had when it entered TOD status.
    - The runway time of departure taken from the latest FM/FC/EDCT/SI. (Field T1 in a CDM message gives this time; prefix is L or C)
    - The runway time of departure modeled from the gate time of departure from the latest FM/FC. (Field T3 in a CDM message gives this time; prefix is L)
    - The runway time of departure modeled from the P-time in a NAS flight plan (prefix is P)
    - The runway time of departure modeled from the scheduled gate time of departure in the OAG (prefix is S)

15. ETA: Estimated Time of Arrival – Lddddd

    The ETA is the best, estimated runway arrival time; it uses a prefix to indicate the status of the flight. The values of the prefix are:

    - L - ETA is an airline provided runway arrival time
    - E - Time has been estimated by ETMS modeling.
    - A - Time is from a NAS termination (AZ) message.

    The sources of this runway time are dependent on whether the flight has departed.

    - For flights which have departed, the precedence in decreasing priority order is:
        - The actual time of arrival taken from a NAS arrival message AZ (prefix is "A"); flight is completed.
        - The time modeled from en route data updates (TZ's and UZ's). (prefix is E)
        - (Actual departure time + previous ETE) when a DZ has been received. (prefix is E)
- For flights which have not departed, the precedence in decreasing priority order is:
        - (Current time + current ETE) if the flight is five minutes past its previous ETD and hasn't yet departed. (prefix is E); this is known as the ETMS "time-out" delay
        - The runway time of arrival taken from the latest FM/FC/EDCT/SI. (Field T2 in a CDM message gives this time; prefix is L or C)
        - The runway time of arrival modeled from the gate time of arrival from the latest FM/FC. (Field T4 in a CDM message gives this time; prefix is E)
        - The runway time of arrival modeled from the P-time in a NAS flight plan. (prefix is E)
        - The runway time of arrival modeled from the scheduled gate time of departure in the OAG. (prefix is E)

16. ARTD: Actual Runway Time of Departure (AGTD in ETMS) – dddddd

    Name changed as previous name was misleading (it is a runway time not a gate time). ARTD is the time from a NAS DZ message. If no DZ has been received, this field is blank.

17. ARTA: Actual Runway Time of Arrival (AGTA in ETMS) – dddddd

    Name changed as previous name was misleading (it is a runway time not a gate time). ARTA is the time from a NAS AZ message. If no AZ has been received, this field is blank.

18. SGTD: Scheduled Gate Time of Departure – dddddd

    Gate departure time from OAG. Null if no OAG data available for the flight.

19. SGTA: Scheduled Gate Time of Arrival – dddddd

    Gate arrival time from OAG. Null if no OAG data available for the flight.

20. IGTD: Initial Gate Time of Departure (formerly OGTD) – dddddd

    New field used to save the initial gate departure time of the flight. Useful for flight data matching. IGTD is set as follows:

    - When a flight is first created, if it is created from OAG data, airline data (from CDM message), or flight plan data, the IGTD is set to the gate departure time from that source. It will thereafter never be changed.
    - If a flight is created from an "active" message (e.g., departure message, airborne flight plan, etc.), the IGTD is set to null.

21. IGTA: Initial Gate Time of Arrival (formerly OGTA) – dddddd

    New field used to save the original gate arrival time of the flight. Useful for flight data matching. IGTA is set as follows:

    - When a flight is first created, if it is created from OAG data, airline data (from CDM message), or flight plan data, the IGTA is set to the gate arrival time from that source. It will thereafter never be changed.
    - If a flight is created from an "active" message (e.g., departure message, airborne flight plan, etc.), the IGTA is set to null.

22. PGTD: Proposed Gate Time of Departure – dddddd

    Departure time from NAS flight plan. Null if no flight plan has been received for the flight. If multiple flight plans have been processed, shows the P time from the last one.

23. PGTA: Proposed Gate Time of Arrival – dddddd

    Arrival time from NAS. Generally this is initially set from the flight plan, then updated when DZ and UZs are processed. Null if no NAS arrival time has been received for the flight.

24. PETE: Filed ETE – dddd

    The PETE field was created because the PGTD and PGTA pair do not preserver the ETE filed by the flight operator on the flight plan. PETE is set in the following manner:

    - If a NAS flight plan has been received for this flight with an ETE field, PETE is set to latest such value. Otherwise the value is null. PETE is in units of minutes.

25. LRTD: Airline Runway Time of Departure [CDM Field T1] – dddddd

    Predicted runway time of departure provided by the airline in a CDM message. If an airline has sent in a runway departure time in a CDM message, then this field contains the most recent such time. Otherwise, the value is null

26. LRTA: Airline Runway Time of Arrival [CDM Field T2] – dddddd

    Predicted runway time of arrival provided by the airline in a CDM message. If an airline has sent in a runway arrival time in a CDM message, then this field contains the most recent such time. Otherwise, the value is null.

27. LGTD: Airline Gate Time of Departure [CDM Field T3] – dddddd

    Predicted gate time of departure provided by the airline in a CDM message. If an airline has sent in a gate departure time in a CDM message, then this field contains the most recent such time. Otherwise, the value is null

28. LGTA: Airline Gate Time of Arrival [CDM Field T4] – dddddd

    Predicted gate time of arrival provided by the airline in a CDM message. If an airline has sent in a gate arrival time in a CDM message, then this field contains the most recent such time. Otherwise, the value is null.

29. ERTD: Earliest Runway Time of Departure [CDM Field T7] – dddddd

    The earliest departure time that the airline would like to have assigned to this flight in a ground delay program. If the airline has sent this field in a CDM FC or FM message, then the most recent such time is contained in this field. Otherwise, the value is null.

30. ERTA: Earliest Runway Time of Arrival [CDM Field T8] – dddddd

    The earliest arrival time that the airline would like to have assigned to this flight in a ground delay program. If the airline has sent this field in a CDM FC or FM message, then the most recent such time is contained in this field. Otherwise, the value is null.

31. OUT: Gate Out Time [CDM Field TBD] – dddddd

    The time at which a flight pushed out from the gate as reported by the airline via a CDM message. If the airline sends more than one value, then the most recent such time is contained in this field. Otherwise, the value is null.

32. OFF: Time Off the Runway [CDM Field TBD] – dddddd

    The time at which a flight lifts off from the runway as reported by the airline via a CDM message. If the airline sends more than one value, then the most recent such time is contained in this field. Otherwise, the value is null.

33. ON: On the Runway [CDM Field TBD] – dddddd

The time at which a flight touches down on the runway as reported by the airline via a CDM message. If the airline sends more than one value, then the most recent such time is contained in this field. Otherwise, the value is null.

34. IN: Gate In Time [CDM Field TBD] – dddddd

    The time at which a flight pulls in at the gate as reported by the airline via a CDM message. If the airline sends more than one value, then the most recent such time is contained in this field. Otherwise, the value is null.

35. OETD: Original Estimated Departure Time (OGTD in ETMS) – dddddd

    OETD is used to save the ETD at the time a ground delay program is issued, or the flight departs, or the flight is "time-out" delayed by CDM. The OETD is used to "back out" of a ground delay program. The OETD does NOT include any time-out delay modeled by CDM when a flight is late departing. Renamed from OGTD because the ETMS name is misleading. OETD is set in the following manner:

    - Whenever an ETD is updated from an FS, FC, FM, or FZ, as long as the flight is not controlled or active, the OETD is set to the new ETD.

36. OETA: Original Estimated Arrival Time (OGTA in ETMS) – dddddd

    See discussion of Original Estimated Departure Time. OETA will be set in the following manner:

    - Whenever the ETA is updated from an FS, FC, FM, or FZ, as long as the flight is not controlled or active, the OETA will be updated to the ETA.

37. BETD: Base Estimated Departure Time (OGTD in ETMS) – dddddd

    BETD is used to save the ETD at the time a ground delay program is issued or the flight departs. The BETD is used to compute the amount of departure delay that can be attributed to a ground delay program. The BETD includes any modeled time-out delay. BETD is set in the following manner:

    - Whenever an ETD is updated from an FS, FC, FM, or FZ, as long as the flight is not controlled or active, the BETD is set to the new ETD.
    - Whenever CDM re-models a departure time due to a "time-out" delay, the BETD is updated to the new ETD.

38. BETA: Base Estimated Arrival Time (OGTA in ETMS) – dddddd

    See discussion of Base Estimated Departure Time. BETA will be set in the following manner:

    - Whenever the ETA is updated from an FS, FC, FM, or FZ, as long as the flight is not controlled or active, the BETA will be updated to the ETA.
    - Whenever CDM re-models a departure time due to a "time-out" delay, the BETA is updated to the new ETA.

39. OCTD: Original Controlled Time of Departure – dddddd

OCTD preserves the first controlled departure time (CTD, a.k.a. EDCT) for a flight. OCTD is set in the following manner:

- If an EDCT is received for a flight and the flight is not already controlled, the OCTD is set to the EDCT time.
- If an EDCT is received for a flight and the flight is already controlled, the OCTD is not changed.
- If an EDCT purge is received for a flight and the flight is not active or completed, the OCTD is cleared.
- If a flight is not currently controlled, nor was it controlled when it departed, the value of OCTD is null.

40. OCTA: Original Controlled Time of Arrival – dddddd

    OCTA preserves the first controlled arrival time (CTA) for a flight. OCTA is set in the following manner:

    - If an EDCT is received for a flight and the flight is not already controlled, the OCTA is set to the CTA.
    - If an EDCT is received for a flight and the flight is already controlled, the OCTA is not changed.
    - If an EDCT purge is received for a flight and the flight is not active or completed, the OCTA is cleared.
    - If a flight is not currently controlled, nor was it controlled when it departed, the value of OCTA is null.

41. CTD: Controlled Time of Departure (CGTD in ETMS) – dddddd

    CTD is the current controlled departure time (EDCT) for a flight. CTD is set in the following manner:

    - If an EDCT is received for a flight, the CTD is set to the EDCT time.
    - If an EDCT purge is received for a flight and the flight is not active or completed, the CTD is cleared.
    - If a flight is not currently controlled, nor was it controlled when it departed, the value of CTD is null.

42. CTA: Controlled Time of Arrival (CGTA in ETMS) – dddddd

    CTA is the current controlled arrival time (EDCT) for a flight. CTA is set in the following manner:

    - If an EDCT is received for a flight, the CTA is set to the CTA from the EDCT.
    - If an EDCT purge is received for a flight and the flight is not active or completed, the CTA is cleared.

- If a flight is not currently controlled, nor was it controlled when it departed, the value of CTA is null.

43. ASLOT: Assigned Arrival Slot [CDM Field A2] – LLLddddddL

    When a CDM GDP is issued, each controlled flight is assigned an arrival slot. The ASLOT field is set as follows:

    - If an EDCT is received for a flight, the ASLOT is assigned to the value from the message.
    - If an EDCT purge is received for a flight and the flight is not active or completed, the ALSOT is cleared.
    - If a flight is not currently controlled, nor was it controlled when it departed, the value of ASLOT is null.

44. CTL_ELEM: Controlled Element – Lcc[cc]

    If a flight is controlled (i.e., has a CTD and CTA), CTL_ELEM indicates the constrained NAS element for which a ground delay program or ground stop was run. Currently, the CTL_ELEM can only be the arrival airport, however, we are anticipating the expansion of GDPs into en route constraints. It is set in the following manner:

    - If a flight is controlled, the CTL_ELEM is the airport, fix, or sector for which the GDP or ground stop was run.
    - If a flight is not controlled, the CTL_ELEM is null.

45. CTL_TYPE: Control Type – LL[LL]

    If a flight is controlled (i.e., has a CTD and CTA), CTL_TYPE indicates the specific source of the current CTD/CTA. The possible sources are:

    - GS – a ground stop program
    - GDP – an initial GDP, an extension, or a revision
    - COMP – compression
    - FA – a fuel-advisory delay
    - BLKT – a blanket (+/-) program
    - SUB – an airline substitution message
    - UPD – an ETMS “EDCT UPDATE” command

46. CTL_EXMPT: Control Exempt Flag – c

    If a flight is controlled (i.e., has a CTD and CTA), CTL_EXMPT indicates whether the flight was categorized as “exempt” (for example, due to departure time status or departure center) when the GDP was computed.

47. SL_HOLD: Slot Hold Flag – L

If a flight is controlled (i.e., has a CTD and CTA), the SL_HOLD flag indicates whether the slot associated with this flight is being held, or would be held, by the airline for the next compression. The compression algorithm will not automatically fill slots that are held.

48. DV_REC: Diversion Recovery Flag – c

    Indicates that the flight is a recovery of a flight that was previously diverted. A diversion recovery inherits data from the original flight to ensure that it be given a priority in any GDP that has been or may be run.

49. SI: SI Cancelled – L

    Indicates whether the flight is currently cancelled and an SI cancel message or EDCT UPDATE cancel has been processed for this flight. An SI cancel message is used by an airline when substituting flights during a GDP. An EDCT UPDATE cancel is used by a traffic manager to cancel a flight that is part of a GDP.

50. FX: FX Cancelled – L

    Indicates whether the flight is currently cancelled and an FX message has been processed for this flight. An FX message is the CDM message used by an airline to indicate a flight is not operating.

51. RZ: RZ or NAS Cancelled – L

    Indicates whether the flight is currently cancelled and an RZ message has been processed for this flight. An RZ message is a NAS flight plan cancel message.

52. RS: RS Cancelled – L

    Indicates whether the flight is currently cancelled and an RS message has been processed for this flight. An RS message is an internal ETMS message generated when a specialist takes an OAG flight out of the database.

53. TO: Time Out Cancelled – L

    Indicates whether the flight is currently cancelled and timed out by ETMS. ETMS times out flights when no activation message has been received within a certain time of the predicted departure time. The time out logic is as follows:

    - If NAS or CDM messages have been received for a flight, ETMS will time out the flight one hour after its predicted departure time.
    - If only OAG data has been received for a flight, ETMS will time out the flight five minutes after departure time.

54. DV: Diversion Cancelled – L

    Indicates whether the flight is currently cancelled and was diverted to an alternate destination. The diversion may have come from either a NAS flight plan or a CDM modify (FM) message.

55. RM: Remove Cancelled – L

    Indicates a flight that has been manually removed by an FAA traffic management specialist.

56. ALD: Airline Delayed – L

    Indicates that the airline has at some point sent in a departure time estimate (via a FC or FM) for a flight that was later than the estimate previously in the database.

57. GDP: GDP Delayed – L

    Indicates that an EDCT has been applied to this flight.

58. FAD: FA Delayed – L

    Indicates that an FA delay has been applied to this flight.

59. GSD: Ground Stop Delayed – L

    Indicates the flight is currently part of a ground stop program.

60. TOD: Time Out Delayed – L

    Indicates that ETMS has delayed this flight due to the fact that it has not yet departed. The TOD status precedes a time out cancel. A time-out delay occurs when a flight has a flight plan or CDM message, its departure time is in the past, and it has not been activated yet. In this case, ETMS moves the flight back in time in 5-minute increments until one hour past departure time, at which time ETMS "time-out cancels" the flight and sets the TO flag.

61. CTL_ALM: Alarm Flag – Oxdddd

    Indicates the alarm status flags that are set for a particular flight. The CTL_ALM value is the hexidecimal value of the cumulative total of all set flags, where each flag is a bit in the CTL_ALM word. Once set, a flag is never cleared. More then one alarm can be set at a given time.

    The alarm flags are defined as follows:

    - NO_ALARM = 0
    - CTA_COMPLIANCE (0x1) – indicates that a flight landed outside the CTA compliance window (more than 5 minutes earlier or 5 minutes later than the CTA).
    - CTD_COMPLIANCE (0x2) – indicates that a flight took off outside the CTD compliance window (more than 5 minutes earlier or 5 minutes later than the CTD).
    - ETE_VALUE (0x4) – indicates the difference between the actual enroute time and the controlled enroute time is outside the compliance time range (more than 15 minutes).

- SPURIOUS_FLT (0x8) –indicates that a flight was not scheduled (that is, was created on that day from a CDM message or flight plan), was controlled in a GDP, and was cancelled by a CDM message.
- CANCELLED_FLEW (0x10) –indicates a flight that had a status of cancelled at the time that it was activated by a DZ, UZ, TZ, or AZ message.

Example: A CTL_CLM value of 0x13 means that the CTA_COMPLIANCE, CTD_COMPLIANCE, and CANCELLED_FLEW alarm flags are all set.

62. CDM_MBR: CDM Member Flag – L

    Flag indicating whether this flight belongs to a CDM participant carrier and is eligible for the full benefits of compression.

63. MAJOR: Major carrier – LLL[L]

    For CDM members, indicates the carrier that has substitution for the flight. If the flight IDs for the major carrier are being filtered, the MAJOR field will contain the filtered four-letter code.

64. GCD: Great Circle Distance – ddddd

    Indicates the great circle distance, in nautical miles, between the origin and the destination.

65. LTOD: Length of Time Out Delay – ddd

    If the TOD flag is set, this field indicates the length of the time out delay in minutes.

66. NRP: National Route Program flight – L

    Flight plan has been processed with the keyword “NRP” in field 11. This indicates the flight is participating in the National Route Program.

67. LFG: Lifeguard or MEDEVAC flight – L

    Flight plan has been processed with the keyword “LIFEGUARD” in field 11.

68. IIIFlight is capable of utilizing CAT3 landing minimums. – L

    Flight plan has been processed with the keyword “CATIII” in field 11.

69. ATV: Altitude Reservation – L

    Flight plan has been processed with the keyword “ALTRV” in field 11.

70. SWP: Swapping – L

    Flight plan has been processed with the keyword “SWAP” in field 11.

71. DVT: Diversion Recovery flight – L

    Flight plan has been processed with the keyword “DVRSN” in field 11.

72. ADC: Advise Customs – L

    Flight plan has been processed with the keyword “ADCUS” in field 11.

73. FCA: Flow Contrained Area (new) – L

    Flight plan has been processed with the keyword “FCA” in field 11.

74. WXR: Severe weather reroute – L

    Flight plan has been processed with the keyword “WXRTE” in field 11.

This page intentionally left blank